

Claims:

1. A method of providing an electro-optic interface for exchanging information signals, such method comprising the steps of:
  - disposing an optical array adjacent a first side of an optically transparent substrate, such that a plurality of transmission paths of the optical array pass directly through the substrate;
  - applying an optically transparent underfill between the substrate and adjacent optical array, with the plurality of transmission paths of the optical array passing directly through the underfill; and
  - coupling a plurality of optical signals of the optical array through the optically transparent underfill and optically transparent substrate between the optical array and an optical connector.
2. The method of providing an electro-optic interface for exchanging information signals as in claim 1 further comprising disposing a plurality of alignment apertures in the optically transparent substrate.
3. The method of providing an electro-optic interface for exchanging information signals as in claim 2 further comprising inserting a guide pin in each of the plurality of alignment apertures.
4. The method of providing an electro-optic interface for exchanging information signals as in claim 3 further comprising aligning the optical connector, having a plurality of optical fibers and guide pin apertures disposed on a first surface of the connector, to the optical array using the guide pins and guide pin apertures.
5. The method of providing an electro-optic interface for exchanging information signals as in claim 4 further comprising defining the optically transparent underfill as an adhesive.
6. The method of providing an electro-optic interface for exchanging information signals as in claim 5 wherein the step of applying an optically transparent underfill further includes mixing an additive dye into the optically transparent underfill for blocking a portion of the optical signals from the optical array.

7. The method of providing an electro-optic interface for exchanging information signals as in claim 5 further including disposing a plurality of conductive traces on a first side of the optically transparent substrate.

8. The method of providing an electro-optic interface for exchanging information signals as in claim 5 further comprising electrically connecting the optical array with at least some of the conductive traces disposed on the substrate.

9. The method of providing an electro-optic interface for exchanging information signals as in claim 5 further comprising providing a set of conductive contacts to electrically connect the optical array to the conductive traces.

10. An apparatus for providing an electro-optic interface for exchanging information signals, such apparatus comprising:

an optical array disposed adjacent an optically transparent substrate, with a plurality of transmission paths of the optical array passing directly through the substrate;

an optically transparent underfill disposed between the optically transparent substrate and adjacent optical array; and

an optical connector for holding a plurality of optical fibers and for guiding the plurality of optical fibers into alignment with the transmission paths of optical array;

11. The apparatus for providing an electro-optic interface for exchanging information signals as in claim 10 further comprising a plurality of alignment apertures formed in the substrate.

12. The apparatus for providing an electro-optic interface for exchanging information signals as in claim 11 further comprising alignment pins inserted through the apertures in the substrate.

13. The apparatus for providing an electro-optic interface for exchanging information signals as in claim 12 further comprising guide pin apertures located on a first surface of the optical connector.

14. The apparatus for providing an electro-optic interface for exchanging information signals as in claim 13 wherein the optically transparent underfill further comprises an adhesive.

15. The apparatus for providing an electro-optic interface for exchanging information signals as in claim 13 further comprising an additive dye mixed into the optically transparent underfill and adapted to block a portion of the optical signals from the optical array.

16. The apparatus for providing an electro-optic interface for exchanging information signals as in claim 13 further comprising a plurality of conductive traces disposed on the first side of the optically transparent substrate.

17. The apparatus for providing an electro-optic interface for exchanging information signals as in claim 16 wherein at least some the plurality of conductive traces disposed on the first side of the substrate further comprise a signal path coupling the optical array.

18. The apparatus for providing an electro-optic interface for exchanging information signals as in claim 17 further comprising a plurality of conductive contacts electrically connecting the optical array and the conductive traces.

19. A method of providing an electro-optic interface for exchanging information signals, such method comprising the steps of:

disposing the optical array, having a plurality of optical ports, adjacent the substrate with an axis of transmission of the optical array directed towards a body of the substrate; and

interposing an optically transparent underfill between the substrate and adjacent optical array, such that the axis of transmission of the optical array passes directly through the optically transparent underfill and the body of the substrate.

20. The method of providing an electro-optic interface for exchanging information signals as in claim 19 further comprising defining the optically transparent underfill as an adhesive.

21. The method of providing an electro-optic interface for exchanging information signals as in claim 19 further comprising mixing an additive dye into the optically transparent underfill for blocking a portion of the signals from the optical array.

22. The method of providing an electro-optic interface for exchanging information signals as in claim 19 further comprising defining the optical array having a plurality of optical ports.

23. The method of providing an electro-optic interface for exchanging information signals as in claim 22 further comprising adapting the adhesive to protect the plurality of optical ports of the optical array.

24. An apparatus for providing an electro-optic interface for exchanging information signals, such apparatus comprising:  
the substrate;

the optical array, having a plurality of optical ports, disposed adjacent the substrate, with an axis of transmission of the optical array directed towards a body of the substrate; and

an optically transparent underfill disposed between the optical array and substrate, such that the axis of transmission of the optical array passes directly through the optically transparent underfill and body of the substrate.

25. The apparatus for providing an electro-optic interface for exchanging information signals as in claim 24 wherein the optically transparent underfill is further defined as an adhesive.

26. The apparatus for providing an electro-optic interface for exchanging information signals as in claim 24 further comprising an additive dye mixed into the optically transparent underfill and adapted to block a portion of the optical signals from the optical array.

27. The apparatus for providing an electro-optic interface for exchanging information signals as in claim 26 wherein the adhesive is adapted to protect the plurality of optical ports of the optical array.